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## NOVEMBER 6.

The President, Dr. JOS. LEIDY, in the chair.

Forty-nine persons present.

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## NOVEMBER 13.

Mr. CHARLES MORRIS in the chair.

Thirty-six persons present.

A paper entitled "Contributions to the Life History of Plants, No. III." By Thomas Meehan, was presented for publication.

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## NOVEMBER 20.

Rev. HENRY C. MCCOOK D. D., Vice-President, in the chair.

Twenty-four persons present.

The President was directed to convey to Mrs Clara Jessup Bloomfield Moore the thanks of the Academy for her gift of Five Thousand Dollars as an addition to the fund endowed by her father, the late Augustus E. Jessup.

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## NOVEMBER 27.

The President Dr. JOS. LEIDY, in the chair.

Thirty-four persons present.

Dr. W. S. W. Ruschenberger read his biographical notice of the late Geo. W. Tryon Jr. prepared at the request of the Academy.

*Remarks on the fauna of Beach Haven, N. J.*—Prof. LEIDY stated that he had spent the last two summers at Beach Haven, on which he made the following remarks: The place, a summer resort, is situated on the island of Long Branch, a sand bar but a few feet above the ocean level, 22 miles long and little more than half a mile wide, off the New Jersey coast, from which it is separated by Little Egg Harbor and Barnegat Bays. The island consists of the ocean beach, flanked by long low sand hills and meadows extending to the bays. It is treeless, but produces frequent patches of wax-myrtle, *Myrica cerifera*. While the variety of marine animal life in the vicinity is comparatively small, a few forms adapted to the special localities are abundant. The ocean beach consisting mainly of fine silicious sand without pebbles, between tides, swarms with the mole

crab, *Hippa talpoidea*, and the little mollusk, *Donax fossor*. Above tides, the beach oft-times is lively with sand-fleas, among which are conspicuous the *Talorchestia macrophthalma*, and less commonly the *T. longicornis*. Still higher extending to the sand-hills, the sand-crab, *Ocypoda arenaria*, is frequent. The mud of the bays and sounds swarms with the scavenger snail, *Ilyanassa obsoleta*, while the meadows abound with the marsh snail, *Melampus bidentatus*. The borders of the meadows are thickly planted with the horse-mussel, *Modiola plicatula*, or are honey-combed by the fidler crab, *Gelasimus pulgulator*. The bays supply the market with abundance of the oyster, which is extensively cultivated for the purpose. The clam, *Venus mercenaria*, also occurs in the greatest abundance, and is constantly gathered for the market. The squirt-clam, *Mya arenaria*, is likewise supplied from mud flats of the bays. The edible crab, *Callinectes hastatus*, often occurs in the bays in great numbers. The previous summer, the bottom appeared to swarm with them, but the last summer they were less numerous, in consequence, as the fishermen report, of great numbers having been destroyed by the severe cold of last winter. In a visit to Beach Haven, in February, I observed many recently dead crabs thrown up on the ocean beach, and feasted on by multitudes of the isopod crustacean, *Cirolana concharum*.

The previous summer also, the lady-crab, *Platyonichus ocellatus*, was frequent on the ocean beach near low tide, but during last summer was almost absent. It probably, also suffered from the cold of last winter, for in February, at Atlantic City, I found a number recently dead, and likewise feasted on by the *Cirolana*.

In the bays the spider crab, *Libinia canaliculata*, the shrimp, *Palaemonetes vulgaris*, and the hermit crab, *Pagurus longicarpus*, are in abundance, and the *P. pollicaris* is not infrequent. The shrimp is infested to a wonderful degree with a parasitic crustacean *Bopyrus palaemoneticola*. The horse-shoe crab, *Limulus polyphemus* also occasionally occurs on the ocean beach.

The sand of Beach Haven is remarkably sonorous; when scraped in walking, it emits a sound like that produced by sliding a rubber shoe on the pavement.

The condition of the ocean beach varies with the direction of the winds and violence of the waves. Mostly, it is remarkably uniform and free from organic debris, and is composed of fine, white quartz sand without pebbles, and with streaks and patches of black sand, which from its greater specific gravity is incessantly sifted from the white sand by the winds and waves. On one occasion, during the prevalence for several days, of a strong north-east wind, the beach above high tide was covered with a broad stratum of black sand from a fourth to an inch thick, over which the white sand was blown like columns of smoke and accumulated at the base of the sand hills where it looked by contrast like snow drifts. The organic debris cast ashore mostly consists of materials carried out from the bays, commonly, masses of eel-grass, *Zostera marina*, and bunch-

es of bladder-wrack, *Fucus vesiculosus*; the latter often attached to a horse mussel, on which the plant grew. Frequently attached to the plants are various animals, especially *Bugula turrita*, *Obelia commissuralis*, *Perophora viridis*, *Lepas fascicularis*, etc. Occasionally there are thrown ashore a live beach-clam, *Mactra solidissima*, a dead shell of the same with attached branches of *Sertularia argentea*, the collar-like sand egg-cases of *Natica* and the chaplet ones of *Fulgur*. In the experience of two summers medusae were rarely wafted ashore, and these were in fragments and pertained to *Cyanea arctica* and apparently *Aurelia flavidula*.

Goose barnacles, *Lepas fascicularis* occasionally are not infrequent; and more rarely *L. anatifera*, attached to fragments of timber, is thrown on the sands. High up on the beach, at the base of the sand-hills and often extending into the valleys between them are multitudes of bleaching shells, the remains of occasional severe storms. Most of the shells are those of the beach clam, *Mactra solidissima*, which, everywhere on the open coast of New Jersey, appears to be the most common lamellibranch, except the little *Donax fossor*. The younger shells of the *Mactra* are often observed along shore, with a circular hole through the umbo, made by *Natica*. Some years since, at Atlantic City, I observed a number of beach clams, in the sand between tides, which were in possession of *Natica heros* in the act of boring the shell.

Among the occasional shells on the beach, fragments of large ones of *Pholas costata* are not infrequent, and yet an experienced clam catcher, who is familiar with the ordinary animals of the locality informed me that he had never found a living one.

My friend Joseph Willcox and I made several attempts at dredging in Little Egg Harbor, but with very little result of interest. Near the mouth of the bay, we drew up great quantities of *Mytilus edulis*, less than half grown, accompanied by many star-fishes, *Asterias arenicola*. In some positions we took numerous dead shells of the oyster and clam, *Venus mercenaria*, preyed upon by the sulphur colored boring sponge, *Cliona sulphurea*. This, after drilling and tunneling the shells in all directions, continues to grow into masses from the size of one's fist to that of the head, in which condition it is known to the clam-catchers as the "bay pumpkin." The skeleton of this sponge is constructed of calcareous pin-like spicules. It also attacks and preys on the shell of the living oyster, but appears not to do so on the living clam. The sedentary habit of the former, no doubt, facilitates its attacks. The shells of the oyster and clam, *Venus*, bored in a sieve-like manner, and freed from the sponge, are frequently thrown on the ocean beach, and with them rarely the shell of a *Mactra* bored in the same manner, but I could not ascertain whether the *Cliona* lived on the shore of the open ocean.

Another sponge frequently observed growing on living oysters and on dead shells of the same and of the clam, *Venus*, is called by the catchers the "red beard," *Microciona prolifera*. It is bright

vermilion color when alive, but brown when dead, and masses of it in the latter condition are often found on the ocean beach. It is a silicious sponge and does not prey on the shells of mollusks.

From an oyster bed we took up some young oysters, an inch to two inches long, with the shell perforated by the "drill," *Urosalpinx cinerea*. The perforation, made in the vicinity of the adductor muscle, about admits an ordinary bristle. An oyster catcher, James R. Gale informed us that the "drill" was introduced into the locality, with spat brought from the coast of Virginia. With the *Urosalpinx* we took another snail, *Anachis similis*, which Mr. Gale assured us was more destructive, as a borer, to young oysters than the former. Another snail which we took, the *Eupleura caudata*, Mr. Gale says has the same habit.

Attached to oysters were also found a great profusion of the polyzoon *Vesicularia dichotoma*.

Of the mollusca of the vicinity of Beach Haven I observed the following:

#### GASTERPODA.

<i>Ilyanassa obsoleta</i> .	Exceedingly abundant.
<i>Melampus bidentatus</i> .	Exceedingly abundant.
<i>Fulgur carica</i> .	
<i>Fulgur canaliculata</i> .	
<i>Natica heros</i> .	
<i>Natica duplicata</i> .	
<i>Urosalpinx cinerea</i> .	
<i>Eupleura caudata</i> .	
<i>Anachis similis</i> .	
<i>Bittium nigrum</i> .	
<i>Crepidula fornicata</i> .	
<i>Crepidula convexa</i> .	
<i>Crepidula plana</i> .	

#### LAMELLIBRANCHIATA.

<i>Mactra solidissima</i> .	Exceedingly abundant.
<i>Donax fossor</i> .	Exceedingly abundant.
<i>Venus mercenaria</i> .	Exceedingly abundant.
<i>Mya arenaria</i> .	Abundant.
<i>Solen americanus</i> .	Common.
<i>Tagellus gibbus</i> .	
<i>Ceronia deaurata</i> .	One dead specimen.
<i>Cochlodesma carum</i> .	
<i>Thracia leana</i> .	One dead specimen.
<i>Cyclocardia borealis</i> .	One dead specimen.
<i>Astarte undata</i> .	
<i>Astarte castanea</i> .	
<i>Petricola pholadiformis</i> .	
<i>Pholas truncata</i> .	
<i>Pholas costata</i> .	
<i>Cyclas dentata</i> .	

<i>Scapharca transversa.</i>	
<i>Arca pexata.</i>	Common.
<i>Arca transversa.</i>	
<i>Mytilus edulis.</i>	Abundant.
<i>Modiola plicatula.</i>	Exceedingly abundant.
<i>Pecten irradians.</i>	Common.
<i>Anomia glabra.</i>	Abundant.
<i>Ostrea virginiana.</i>	Exceedingly abundant.
<i>Teredo navalis.</i>	

Of Crustacea the following were observed :

*Callinectes hastatus.*  
*Platyonichus ocellatus.*  
*Cancer irroratus.*  
*Ocypoda arenaria.*  
*Gelasimus pugnax.*  
*Gelasimus pugilator.*  
*Libinia canaliculata.*  
*Panopeus Sayi.*  
*Pinnotheres ostreum.*  
*Eupagurus pollicaris.*  
*Eupagurus longicarpus.*  
*Hippa talpoidea.*  
*Gebia affinis.*  
*Palaemonetes vulgaris.*  
*Orchestia palustris.*  
*Orchestia agilis.*  
*Talorchestia longirostris.*  
*Talorchestia macrophthalma.*  
*Gammarus ornatus.*  
*Unciola irrorata.*  
*Caprella geometrica.*  
*Erichsonia attenuata.*  
*Cirolana concharum.*  
*Bopyrus palaemoneticola.*  
*Livonica ovalis.*  
*Lepas fascicularis.*  
*Lepas anatifera.*  
*Limulus polyphemus.*

*The Turret Spider on Coffin's Beach.*—Dr. HENRY C. MCCOOK remarked that he had spent July and August, 1888, at Annisquam, Mass., a port of Cape Ann at the mouth of the Squam river where it enters into Ipswich Bay. The eastern shore of the bay opposite Annisquam consists in part of a stretch of sand hills, known as Coffin's beach. The sand is of a beautiful white color and is massed at places in elevations of considerable height, constituting what is known as the "sand hill," or "the dunes." The fragrant bay bush grows in clumps along the edges and summits of these irregular sand elevations, and this is intermingled with patches of tough grass.